

News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH JULY 15, 1979

INDEPENDENCE DAY CELEBRATIONS JUNE 5, 1979
AIR AND WATER POLLUTION CONTROL
SCIENCE AND ENGINEERING GROUP
INSTITUTE OF TECHNOLOGY, BOMBAY



Prof. M.G.K. Menon, Secretary, Department of Science and Technology, Government of India, inaugurating the Conference on air and water pollution control at the Indian Institute of Technology, Bombay.

MAHARSHI DAYANAND UNIVERSITY ROHTAK

Invited applications (through proper channel) for:

TEACHING POSTS

Professor in: English
Readers in: Mathematics, History and Physics
Lecturers in: Sociology, History, Sanskrit and Law.

QUALIFICATIONS

- i) **Professor:** Very good academic record, Doctoral Degree, Experience of guiding research, 10 years teaching experience of post-graduate classes, about 5 years as Reader.
- ii) **Readers:** Very good academic record, Doctoral Degree, atleast 5 years experience of teaching post-graduate classes.
- iii) **Lecturers:** Good academic record, Doctoral Degree or high standard research work.
- iv) **Lecturers in Law:** (a) Ph.D. or high second class LL.M. or any other foreign degree equivalent thereto (b) A candidate having teaching experience may be preferred.

SPECIALISATION

Professor in English: Modern English Literature.
Readers in Mathematics: For one post only: Applied Mathematics/Statistics.
Readers in History: For one post only: Modern Indian History. **Reader in Physics:** Lasers/Spectroscopy/Solid State Physics / Mossbauer Spectroscopy Electronics or Allied topics.
Lecturers in History: For one post: Modern Indian History and for other post Medieval Indian History. **Lecturers in Law:** For one post only: Labour Laws.

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U.G.C. Pay Scales for all categories of teaching posts, with usual allowances and benefit of Contributory Provident Fund. Reservation for Ex-Servicemens B.C./S.C./S.T. candidates as per rule, and no application fee from them. Qualifications relaxable and higher start admissible in deserving cases. Knowledge of Hindi essential for all posts. Number of posts indeterminate but liable to be increased or decreased. Those who have already applied for the posts of Lecturers in Law in response to earlier advertisement need not apply again.

Applications with full bio-data attested testimonials and crossed postal order(s) for Rs. 5/- for posts carrying basic pay of less than Rs. 300/- and Rs. 10/- for posts carrying higher basic pay in favour of Chief Accounts Officer, payable at Post Office, Rohtak be sent to Registrar by 25-7-1979.

REGISTRAR

THE M.S. UNIVERSITY OF BARODA

DEPARTMENT OF HISTORY FACULTY OF ARTS

Special Assistance Programme: 1979-80
Admission for M.A. History & National Scholarships: (Four)

Admission are open for students wishing to join M.A. in History. Applicants should have B.A. degree with History as one of the subjects. Preference will be given to those with Second division marks and with History as a Major subject.

Seats are limited and if more applications are received, those having higher qualifications alone may receive admission.

Four National Scholarships of the value of Rs. 250/- per month tenable for two years from the date of admission will be awarded on the basis of a written test held in the first week of August.

U.G.C. Junior Research Fellowships: Four

The above Fellowships of the value of Rs. 400/- per month plus a contingency grant of Rs. 1500/- p.a. tenable initially for a period of two years are available for research studies leading to the Ph.D. degree. The minimum qualifications are an M.A. Degree in History with at least 55% of the total marks.

Teacher Fellowships: Four

Four Teacher Fellowships available to full time teachers serving in Colleges and Universities are available initially for a period of two years, for research studies leading to the Ph.D. degree. As a rule salary protection is provided for those admitted under this category.

For further details and admission forms, apply immediately to the Dean, Faculty of Arts, Station Road, Baroda-390 002 with self-addressed envelope of 00-30 n.p.

M.A. admission may close by the third week of July, other may continue till such dates as may be specified later.

S. C. Misra
HEAD

Department of History

INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

A. Corrigendum to the Advertisement No. R-7 Centre Scheme

1 For the post of Administrative Officer under Radar & Communication Centre.

Please Read: Duration 2 years or till the duration of the Centre whichever is earlier.

2 For the post of Senior Scientist (Soil Physics) Under the Schemes of Agricultural Engg. Department.

Please Read: Duration: 3 years instead of 5 years.

B. Corrigendum to the Advertisement No. R/5/79

For the post of Assistant Professor in Mining Engg. Department

Please Read: "Those who applied earlier for the same post against this Institute's Advertisement No. R/1/79 (Contd.) need not apply again".

A. K. Sur
REGISTRAR

UNIVERSITY NEWS

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*Opinions expressed in the articles
and reviews are individual and do
not necessarily reflect the policies
of the Association*

Scientific "Grace" in University Examinations

V. Natarajan*

'Grace Mark' is a familiar phenomenon at the universities. It is an addition of a mark or two to the ordinary mark awarded by the examiner in order to pass a candidate, or to raise the total pass percentage by extending it to all the candidates.

The semantic sense of the term is suggestive of compassion or charity; the operational procedure is unidirectional, 'grace marks' being always added never subtracted. The whole system is marked by an arbitrariness, reflective of a mind in a confusion, shedding off a sense of guilt by graciousness, but dreading the idea of going too far with it.

However, this 'grace' can be scientifically worked out and that is what this article sets out project.

Given a set of marks which have been assigned to a candidate by what criteria are we to decide whether he passes or not? In the past and, even now in many universities, marks as they come from examiners are accepted on their face value and decisions of 'pass-fail' taken on the basis of minimum marks for a pass decided earlier. The sole virtue of this 'absolute' system is that it is unambiguous: we are never in any doubt as to whether the candidate passes or not. The objection to this is that it rests on a false assumption for 'marks' are not 'absolute' measures. A mark is surrounded by a penumbra of uncertainty and when we divide candidates into pass and fail in accordance with their marks the division may depart very widely from that which would correspond to the true order of merit.

If a candidate's true level is just above the pass line in all subjects and his mark is under-estimated in only one subject, he fails the examination. But the converse is not true. If a candidate's true level is just below the pass line in all subjects, his mark must be over-estimated in all of them before he can pass. The second contingency is much less likely than the first. The number of good students who fail is therefore larger than the number of bad students who pass. The use of 'absolute' system thus tends to give a high failure rate. There can be little doubt that this is a contributory cause of the abnormally high failure rates in the examinations of many Indian universities.

Mark is a measure number. When dealing with them, we must apply the standard theory of measurements and errors. In scientific measurements, three things are to be given.

- a numerical value of the measurement
- a range above and below that value in which we expect the value to lie
- a statement of the strength of that expectation.

All three are necessary; a numerical value (a) above means nothing, often (b) & (c) are implied and not given explicit. In the absence of (b) & (c), (a) will be given only an arithmetical value judgment. In scientific work, it is usual to specify a range which corresponds to a 'confidence level' of 50%

e.g. velocity of light = 299, 792, 500-100 metre/sec. This means that there is a 50% chance that the true value is included in the given limits. For instance there is a 95% chance that the true value lies within 300m/sec of the stated value. If a still higher degree of certainty is needed, we must allow even a wider range.

Let us apply this to examination marks. A mark differs from scientific measurements in that it has a wider range of uncertainty. The reason is: Physical Quantities like mass, temperature, density

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etc are all stable quantities ; there are available very 'precise' and 'accurate' measuring instruments while for mental measurements; mental abilities measured like knowledge, understanding, application etc. are all unstable quantities and the measuring instruments "exams", are not that precise and accurate. This lack of precision is an essential element in the situation which must be taken into account. There is no justification for treating marks as if they were 'absolute' measures.

The uncertainty or imprecision of a mark is specified by its standard error (S.E.). This represents a range of values in which the chance of including the true value is 2/3rd (approx). If an examiner's SE is 5, he will make an error larger than 5 in about 1 in 3 cases. He will make an error larger than 10 about once in 20 times and an error larger than 15 about once in 400 times. What his actual error in any particular case can never be known, since we do not know the 'true mark' at which he is aiming. But we do know, from the SE, the probability that this true mark will fall in any given range. In particular, we can find the probability that the true mark will be above 'pass line'.

Consider an exam where the pass mark is 30, and the SE of the examiner is 5. If the examiner assigns a particular mark to a candidate, what are the probabilities that the true mark is

(a) above the pass line

(b) below the pass line

Let us call these 'passing probability' and 'failing probability'. These can be calculated:

when we have to deal with more than one mark and one subject. Let us consider two subjects that candidates have to appear and pass. Let us say 30 marks are pass marks in each.

Let A and B obtain marks as follows :

	Subject I	Subject II
A	30	30
B	29	32

On the 'absolute system' A passes; B fails on the 'grace mark system' if 1 mark is added in subject I, B also passes : but another candidate C who gets 28, 32 will fail. The probability of passing separately in 2 subjects is the product of the separate probabilities. Using Table I, we can calculate

For A, total probability = $53.98 \times 53.98\% = 29.14\%$

For B, total probability = $46.02 \times 69.15\% = 31.82\%$

It is thus *more probable* that B, rather than A, has satisfied the requirement of passing in both subjects. B is therefore regarded as a better candidate than A; if A is allowed to pass then B must also.

Now consider an examination with three subjects. 35 is pass mark. Let A,B,C get the following combinations :

	Subject I	Subject II	Subject III
A	35	35	35
B	30	36	37
C	34	41	34

Passing probability of A is 16%

Passing probability of B is 8%

Passing probability of C is 19%.

Table 1

Marks	20	25	28	29	30	31	32	35	40
Assigned by the examiner	(-10)	(-5)	(-2)	(-1)	(pass)	(+1)	(+2)	(5+)	(+10)
Passing Probability	2.87	18.41	38.21	46.02	53.98	61.79	69.15	86.43	98.21
Failing Probability	97.13	81.59	61.79	53.98	46.02	38.02	30.85	13.57	1.79

It will be seen that even if the assigned mark is far below the 'pass line', there is still a chance that the candidate deserves to pass and conversely a high mark still leaves open the possibility that he deserves to fail. This is inherent and this must be recognised. The marks can never tell us with absolute certainty ; whether a candidate deserves to pass or not. All we know is the probability that he deserves to pass. This is the only information the marks can give, and we must make use of the information to the best advantage.

On the 'absolute' system we ask whether the assigned mark is upto the 'pass level'. On the grace mark system we see if some judicious adjustment can bring it to the pass level. If these systems are to be 'abandoned', we must learn to use the 'passing' probabilities rather than the marks themselves as the basis of judgment.

If we were concerned with one mark only, it would be unnecessary to insist on this new approach. Table I shows as the marks increase, so do the passing probabilities. It is therefore immaterial whether we fix a limiting mark or a limiting probability to indicate the pass line. This method is advantageous

If A is allowed to pass, C must also pass; B will fail. Now consider an examination with *six subjects* so that for each candidate, there are six probabilities to be multiplied. The marks of candidates are shown below together with probabilities that they pass in all 6 subjects.

Candidate: A: 30 30 30 30 30 30 total probability = 2.47%

Candidate: B: 50 47 40 38 29 22 total probability = 2.88%

On the absolute system, A passes, B fails
On the grace mark system, the result will be the same. And yet B is unquestionably a better candidate than A, in the sense that it is more probable, on the evidence that B satisfies the requirements rather than A. True the actual probability is small, but if A is allowed to pass, B must pass as well, and if there is an order of merit, we must classify B *above* A. In this case, it must be emphasised that we are not condoning a failure because he has done well in other subjects. We have abandoned this approach completely. We pass B in preference to A because it is more probable in his case that the true mark is above the pass line in all subjects.

(Continued on page 383)

Education and Democracy

Krishan Gopal*

For too often, the education that has been imparted in the past and that is being imparted at present, in our country and in many other countries has been subjected to severe criticism not always based upon correct appreciation of the difficulties ahead or the manner in which educational effort may be reoriented. Yet, this is not altogether surprising, for it is not only in the educational spheres of public life, a good deal of introspection has become necessary.

Our constitution has laid it down that India shall be a sovereign democratic republic and that all its citizens shall be guaranteed justice, liberty, equality and fraternity. From this very concept, it becomes obvious that education can no longer be the privilege of the few.

When education is imparted to all the citizens of the State, it becomes obvious that any such education should, to be successful, be imparted in a way that will suit the natural aptitudes and inclinations of the persons who are to get the benefit of education. No longer is it possible for a single track effort to be made and that is why it is becoming increasingly clear that in a democracy, which gives full freedom to the individual to develop along his own lines consistently with the safeguards necessary, the opportunities made available should be such as will conduce to his full benefit.

Expansion of Facilities: It is true that, within the last half a century, there has been a great advance in educational effort in all the countries of the world. To speak of universities alone, it is interesting to note that a very large number of graduates are being turned out in most countries and more institutions for higher education have sprung up consequent upon the demand for such knowledge. Within the last half a century, the number of graduates in most countries has increased and, in some, even tenfold. But has this brought about a feeling of exultation among the public of these countries or has it, on the other hand, given room for a feeling of depression, of grave concern and of conflicting emotions when one realizes what exactly has happened during this same half a century?

Let us not, however, be thrown into a state of emotional depression and anxiety in contemplating the picture as it has been presented. When we speak of education, what exactly do we mean? Far too often, success or failure at school or college supplies no standards by which the promise of the future may be estimated. It is not by the ability to reproduce the words of others or to shuffle mathematical symbols rapidly that one can judge of the value of education that has been imparted.

A student may pass many examinations, obtain

several certificates and yet be only a kind of text-book gramophone. It has been aptly said that knowledge is proud that it knows so much, wisdom is humble that it knows no more. That is the crux of all educational endeavour. In our attempt to equip people with knowledge, have we the time or the opportunity to make them think for themselves, to make them realize what is the real objective of education, how they can cultivate that invaluable gift of becoming wise? Wisdom is not the monopoly of the educated people. Indeed more words of wisdom sometimes have come from those who are despised as illiterate and ignorant.

The Main Purpose: The purpose of all education should therefore be for something much greater than the mere acquisition of knowledge; and, while no form of indoctrination is to be admitted, democracy doubtless presents to the youth of the country an ideal which, if properly appreciated and understood, will lead to the rich heritage of a contended and peaceful life, a life with responsibilities and duties which everyone owes to his fellow citizens, to his country and to the world at large.

To a certain extent this is possible only if education, which implies not mere knowledge but true wisdom, has spread in such a manner that everyone appreciates the worth of democracy when run on true lines. Education is not just a matter of schooling; it is continuous process and education for effective participation in the business of democracy pretty much begins where formal schooling ends. But the fundamental principles should however be made clear to the school-going population at as early a stage as possible.

A Noble Cause: The main problem in a democracy is now best to educate the people to contribute to the rich life of a democratic society, with profit to themselves and benefit to the state and society. Democracy implies not merely a state of government, it is something which must pervade the whole life of the people and which must influence their conduct, their everyday activities, their thoughts and actions, their very mode of life. It is only then that one can speak of a democratic society and democratic form of government. It is obvious therefore, that, if these qualities are to be ingrained in the youth of the country, the true ideals of democracy must pervade their whole system of education and their extra-curricular and social activities. Nor is democracy a quality that is confined to one's own environment, society or State. Loyalty to democratic ideals implies loyalty to a noble cause which is and should be worldwide in its application.

Bertrand Russell has put this concept in nutshell when he says: "We need, and should teach in schools, loyalty to something greater than our own nation. It is nationalism that has brought the world to its present terrifying condition and that is making an acceptable solution of international problems so hard to find. Loyalty that is needed is loyalty to man, and not to man merely as a biological species but as the sole embodiment so far as our knowledge extends of certain values. Man is capable of creating and appreciating beautiful things. He can

*JNU Library, New Delhi.

experience love and admiration and ecstacy. It is true that he exemplifies also the opposites of these goods, the creation of hideous squalor, wilful ignorance, hatred and envy and anguish".

Freedom of Thought: A democracy educates for continuous and active citizenship whereas other forms of government educate only for passive obedience and technical skill. The *sine qua non* of a successful democracy is that all citizens think for themselves about all issues; the requirement of successful totalitarianism is that citizens obey those who think for them.

Applying this principle, can it be said with any degree of self-confidence that we are now a democratic State? Or can it be said that, with adult suffrage and with the coming into existence of the nascent democracy, we are in a position to claim those virtues that a democratic State can confer? Are the electorates in a position to think all issues for themselves? Can it be said that millions of people are not prepared just to obey those who think for them, but that they would think for themselves and decide on every important issue?

It may be asked: Is there any democratic State in this world which fulfil these conditions? There is the rub: Democracy stands at the crossroads today and the success of totalitarianism is in proportion to the extent to which the democratic state falls far short of the ideal concept of the democratic citizen.

In a democratic constitution, the three principle agencies which act and react on each other are the executive with the Ministry at its head, the legislature and the public by which we mean the electorate. In a well defined democracy, the Ministry subject to the approval of the legislature and the legislature submits itself to the ultimate authority of the electorate. There has no doubt developed for many years the authority of the judiciary in setting what constitutes a legal exercise of the powers vested in the executive or the legislature in a Constitution and what does not. And it is the judiciary which decides whether a legislative act is contrary to the constitution and therefore invalid.

While, therefore, a certain amount of judicial restraint is obviously exercised when either the executive or the legislature pass beyond the constitutional limits imposed upon them, it has to be realized that, after all, courts cannot, by their decisions, serve as a means of promoting the ideals of democratic form and conduct. It is the people that have to safeguard democracy and to let it run on proper lines. It is for this reason that, in all educational institutions, the proper spirit of democracy should be cultivated so that, in after life, the persons so trained will be able to safeguard, strengthen and promote the true form of democracy.

Limiting Power: It has been aptly said that it would be a dangerous delusion if the confidence that we placed in the men at the time of election were to silence our fears for the safety of our rights and that such confidence is everywhere the parent of despotism. "Free Government", quotes an author, "is founded in jealousy and not in confidence; so it is jealousy and not confidence which prescribes limited constitu-

tion to bind down those whom we are obliged to trust with power and so we find that in very democratic constitution, the limits to which our confidence may go and go further have been fixed".

It has to be realized that democracy implies the Government of the people, for the people and by the people and through the wisest of them. Democracy does not preach equality of all men whether it be in the intellectual, physical, social economic or moral sphere. But it preaches for the equality of opportunities to all men and envisage the possibility of no man being denied the opportunity to rise to his stature, by virtue of birth or other accidental advantages.

Fundamental Rights: There are two fundamental principles in a democracy; one is the principle that men make Governments and the other that there are limits to the authority of Government. It is a conception of democracy that, as Government is instituted to secure certain rights, its jurisdiction is strictly limited to the field assigned to it and if ever it over steps the bounds of its jurisdiction, its acts are not legal. It is for this reason that those who framed constitutions in the past were significantly conscious that, when the authority of Government was described for the first time in written constitutions, the limits of governmental authority should not be misunderstood. Hence were added to these constitutions bills of rights or what may be called fundamental rights. But this was not the only safeguard against the abuse of governmental authority. There were in addition the checks and balances in any form of democratic government. There were the powers delegated specifically to the executive and the legislature and there were the controls through bicameral legislatures, frequent elections and through impeachment. On the top of all this, there developed the practice of judicial review.

Majority Rule: It is true that in a democracy what we obtain is a majority rule and the party which has got the largest following in the legislature will in effect control all forms of legislation. But this does not mean that majority should be oblivious of its duty to the minority or that it should be impervious to the reasoned arguments and pleas put forward by the minority. It is very important, therefore, that those who are to be educated to work successfully for a democratic form of government should realize in what manner and to what extent majority rule should function consistently with the rights of minorities. What guarantee is there, in short, that the people if conceded the right will not do wrong?

Our constitutional system, like those of many other democratic constitutions, combines in itself checks and balances. A good deal of the politics in a democratic country will necessarily be concerned with reconciling majority and minority will, class hostilities, sectional differences, the divergent interests of producer and consumer, of agriculture and labour, of creditor and debtor, of urban and rural life, of tax payer and tax beneficiary, of the military and the civilian. In small issues as in great, the result is generally a compromise. Democracy, in short, whe-

(Contd. on page 386)

Adult Education—Means of Rural Development

B. V. Solanki*

Adult Education is a function of Rural Development. That means adult education primarily aims at mobilising the rural economy and making the multi-farms development of the villages. In a country like India, where the society is composed of heterogeneous classes of people following different ways of religions, different types of languages, it seems to me that the adult education will be of great importance.

For the development of rural community, adult education is as good as money—investment, machineries and tools of new technology. The welfare minded economists have pleaded for the "Investment in man". To educate the adult is like to turn the barren land into fertile one. Indeed, adult education is a fruitful remedy for the bottling problems in a developing country.

At present, the Government of India is keenly interested in the programmes of adult education. The guidelines and useful literature of Adult Education are supplied by the Government machinery like University Grants Commission. For the effective implementation of these programmes, planning plays very crucial role. It is rightly said that planning and prosperity go together. Therefore the efforts should be made in the right direction. Merely the talk of a plan will not bring the desired fruits to a man or a country. It should be adequately executed. Once, someone said to Abraham Lincoln, if the tail is considered to be a leg, can we say that an animal has five feet? "No" said Abraham Lincoln. He added that the tail should be first converted into the leg. It suggests that the execution of a plan is of great avail and not the professional twist for educating adult population. In fact, this requires actual execution and sharp follow-up actions.

Communication and reporting are the parts of the management in the modern age. M.I.S. plays controlling role, to achieve desired objectives in any type of management. Therefore, one reviewing and monitoring cell should be there, either at the district level or at the University level to collect the exact details of adult education, implement them in the appropriate manner and control the whole programme effectively.

Especially, for periodical returns and relevant statements, to watch the progress of adult education, following points are to be considered :

- (1) Complete identification of the A.E. Centre.
- (2) Staffing pattern employed in this programme for each Centre.
- (3) Identification of the office/Block under whom the centre is working.
- (4) Yearly/quarterly/monthly financial targets.
- (5) Yearly/quarterly/monthly expected physical achievement of this programme. It should be in Units/Programmes/Mandays generated or in any other suitable form.

- (6) Brief narration of the preplanned activity to achieve this programme.
- (7) Actual financial cost incurred and out-put generated in relevant units.
- (8) It is asked to enclose relevant printed/cyclostyled reports/monographs/loose folders etc. if any pertaining to such activity.
- (9) Difference between the targets and achievements (financial as well as physical) and the reasons of this difference.
- (10) Difficulties/Bottlenecks etc. in implementing the scheme and its remedies.

It is to be noted that literacy is not the ultimate objective of Adult Education, it is indeed a means to achieve an end. This end is to enlighten the illiterate brothers of our country, equip them with the knowledge of modern science and technology and enable them to live a prosperous and peaceful life. They should be moreover made familiar with the fundamental inter-actions of animal husbandry, farming, cottage industries etc. which will certainly enrich their day to day life.

The adult education should not be based merely on the one or two techniques of teaching. The programmes must be decided, keeping in mind the local people, locality and the time of both—the learners and the teachers.

If the constant and sincere efforts are made in the effective implementation of adult education programme, I am sure the villages of our country will rise to the peak of prosperity. □

Scientific "Grace" in University Examinations

(Continued from page 380)

Given any set of marks and an assumed value for the SE of the examiner, there is a certain probability that the candidate, on true marking, would pass in all subjects. All candidates should pass for whom this probability exceeds some specified value. S.E.

The standard error of an examiner can be found, usually it is from 5 to 7. Tables are available for calculating 'passing probabilities' with SE=5 & SE=7.

The Research Cell, has a computer programme, that will print out passing probabilities for any number of candidates for any number of subjects with the help of a "computer stored passing probability tables". If the marks obtained by candidates are given in several subjects, the passing probabilities can be printed out. The passing probability of a candidate scoring 'pass mark' in each of these subjects can be calculated and kept as a standard against which the passing or failing of every candidate will be judged. The Research Cell will be willing to help universities meeting this service. □

*Sardar Patel University, Vallabh Vidyanagar.

Education at Crossroads

In the centuries when the country came under foreign rule the system of education fashioned by aliens was such, as would help the perpetuation of their dominance. There was very little scope for the development of initiative, imagination and creative talents. The masses that were seething with discontent had perforce to reconcile themselves to the unhappy situation. The aching passion to get freedom kept all sections of the people united setting at rest superficial problems that usually provoke excitement.

The advent of freedom, heralded with joyful hopes, has however, released pent-up forces and created situations which deserve to be handled with caution, sobriety

unhealthy directions. It is no use blaming the situation and indulging in vague criticism. Practical wisdom and patriotic zeal alike demand that all agencies that matter in education co ordinate their efforts and hammer out a satisfactory solution.

In the first place, it has to be understood that the unhappy plight of education to-day is the product of a combination of circumstances not altogether within our control, and a variety of causes that are of an extraneous nature. There has been a tremendous explosion of population in the country. A democracy which is committed to the provision of equality of opportunities has necessarily to provide for the

in consonance with the aptitudes and abilities of youngsters and that all of them need not go through the same type of education in their own interests and in the interests of national progress. The result is that there is a large-scale desire on the part of the parents to send all youngsters to colleges, irrespective of their talents, tastes and temperament. Schools and colleges that offer academic courses get over-crowded. Since instruction has to be on a mass scale to heterogeneous groups of pupils by teachers of varying talents, the quality of education suffers very much. Even when adjudged by fairly liberal standards not all the youngsters come out successful in the final test revealing by implication that the time and money spent in educating a large number have been futile. The employing agencies set up by the the Government and the non-official sector are not able to absorb all the youngsters that emerge out of educational institutions. The poignant feeling of disappointment and frustration caused by such a situation leads to uneasiness and disturbs the equilibrium of society.

CONVOCATION

and constructive idealism. The deficiencies, limitations and evils of the system of education—the unfortunate bequest of foreign rule—have become very much manifest now. In spite of earnest efforts for about three decades, we have not been able to give a proper shape, cohesion and vitality to our education. There is a growing feeling that education has missed its track and failed, by and large, to fulfil its lofty mission. It is found fault with as being much too theoretical, stereotyped and unrelated to the needs of the country and the genius of our culture.

Our educational institutions seem largely to be factories of learning which turn out huge numbers of youngsters who find it difficult to fit themselves into life. Failure in getting gainful employment in spite of their degrees and diplomas, acquired after strenuous effort, fills them with a feeling of frustration which not unoften finds expression in

education of all the people. Moreover, democracy can function successfully only when the citizens are endowed with a fair degree of culture. The Government has to set up more and more educational institutions to cater to the growing needs of the community.

But by the very nature of its functions, the Government cannot concentrate all its attention on education alone though it is a vital sphere of activity. Its time, energy and resources have to get reasonably distributed among other departments of national life that are important. Private agencies have therefore to play a big role in organising and conducting educational institutions. Diversity in the pattern of the educational system, total lack of co-ordination and the absence of specific aims that have to underline educational activities tend to aggravate the difficulty of the situation.

The common people have yet to realise that education has to be

It has to be realised that the complexion of education has changed very much in the present world and that its sphere has greatly enlarged in the wake of scientific advancement and the growth of civilisation. Education is not merely literacy. Literacy is, of course, a necessary phase in the process of education. But it is not the be-all and end-all of education. Education is a total activity, a synthetic discipline, which has to take into its ambit the development of the physique, the enlargement of the mind, the sublimation of the emotions and above all, the refinement of the spirit. Educational Institutions are no longer the exclusive agencies of the new knowledge that is essential for understanding the phenomena in the world and for solving the problems of national life. Education has to draw sustenance from other departments national activity and to depend for its fulfilment on a variety of other institutions engaged in activities that nourish national life. Edu-

cation has thus become a corporate responsibility which has to be shared by several agencies interested in equipping the young for a purposeful life and in building up the nation on healthy lines. This factor has to be borne in mind in all attempts to reorganise our system of education.

It is true that the ultimate factor in education is the teacher. It may not be too much to say that the quality of the teacher is the quality of education. But in the present context, the role of the teacher has become much shrivelled. He is no longer the sole custodian of knowledge: nor is he able to exert all his influence individually on a larger number of youngsters that seek instruction at his hands. His work is very often judged by the spectacular results he is able to produce at the public examinations. Hence, much of his time and energy get absorbed in equipping the pupils for examinations and helping them scrape through the eccentric tests.

The higher aspects of education do not loom large in his mental horizon because he has to satisfy the constricted needs of a rigid system. Added to this, other agencies like the radio, the television and the film attempt to play an important part in education. The atmosphere outside of educational institutions, created by controversial non-academicians and sustained by conflicting ideologies, tends very much to neutralise the good work of the teacher.

Teaching is not so much the communication of facts and figures as a quickening of the mind into creative activity by the personal influence of the teacher. The teacher has not merely to dump information into the minds of the young but develop in them a holy passion for acquiring purposeful knowledge that will ripen into wisdom by means of diligent and concentrated effort. This noble object the teacher can achieve only when it is possible for him to establish intimate personal contact with the young and exert his wholesome influence on them in an atmosphere of freedom. It

is inspiring to learn that in the Nalanda University of old, for the 10,000 pupils who sought education there were at least 1,000 teachers to impart effective instruction to the young in different branches of learning.

The parents have quite a significant part to play in the education of the young. It is well to remember that the parents are the first teachers even as the teachers are the second parents and that the home is the first school even as the school is an extension of the home with all its chastening influence. The child's early education is definitely shaped by the activities of the parents in their homes. The child imbibes the rudiments of knowledge only in the domestic set-up, watching and observing all that is being said and done. The parent's responsibility does not cease when the son or daughter is put to school or college. It is a sacred duty cast upon him that the salutary cumulative influence of the band of teachers is maintained and strengthened at home. This has become imperative in the present when a number of forces in the external world threaten to atrophy the influence of educational institution.

It is a hopeful augury for the future of our land that devoted and determined efforts are being made to reorganised education on rational lines so as to make it a radiant instrument of national progress and homogeneity. Even the best of intentions sometimes leads to mistakes and creates difficulties. It has to be realised that in our country with its vast area, variety of languages and diversity in outlook, brought about by historical, geographical and political causes, it is not easy to evolve a pattern of education which will be suitable to all parts of the country. But it behoves us in the light of the experience we have gained in the three decades of our independence and the wisdom we have been able to garner through the study of progressive trends in the enlightened world to fashion a system of education which will ensure uniformity in essentials and promote national solidarity.

In matters like the span of edu-

cation its classification into convenient units each of which will be self-sufficient and lead on to the next stage, and the maintenance of academic standards there has to be a core of identity. Education has to be absolutely free from the influence of partisan politics, parochial bigotries and linguistic fanaticisms. Only then will it fulfil its purpose as a unifying and civilising agency promoting integration. It should be possible for scholars and teachers to move freely from one State to another and pursue their avocation without any difficulty. On the basis of inter-State cordiality, it should be easy for universities which offer specialised courses of studies in the higher realms of research in specific subjects to attract talented men from different parts of the country. It follows therefore that the accent in education in general has to be on the quality precision, purposefulness and relevance of the material presented to the mind rather than its quantum, diffusion, discursiveness and sweep.

In a democracy which seeks to ensure the maximum good to the maximum number, it is a positive disservice to mechanically transmit to the young exploded theories and worn-out facts which have been proven to be out of date. It is said that in progressive countries the toys that children play with are miniature models of the latest scientific discoveries. As against that, the scientific knowledge that we assiduously impart to our youngsters in advanced courses is said to be very often far behind times. The result is that several of our brilliant young men feel inclined to migrate to foreign countries, to find full scope for the development of their native talents. Not unoften do their services get lost to the motherland. The duty therefore devolves itself upon those who fashion educational policies to be abreast of the times and to cause the teaching material to be organised in such a manner that our youngsters get the benefit of the latest trends in educational advancement.

Another essential in education is the inculcation of the right atti-

tudes in the young. To-day, humanity has become contracted into a close fraternity of compulsory concord. Our plans and projects for the progress and prosperity of mankind have to be on an international, if not interplanetary basis. In such a context, parochialism or chauvinism appears to be an anachronism. Cordial co-existence, and not exclusive independence, is the ideal the progressive world has set before itself. In the safety and peace of all the people, lie the safety and peace of every individual. Hence man has to be just man if he is to survive, and he has to develop positive attitudes of goodwill, helpfulness, tolerance, sympathy and servability. Education while being broad-based upon the genius and culture of our land, has to train the young for the duties and responsibilities of enlightened national and world citizenship.

Yet another feature that deser-

ves to be interwoven into our educational system to make it purposeful is the provision of opportunities to the young for rendering useful service in vital directions of national life. This has to be done even in the period when they are in active tutelage. They have to be introduced to spheres of national activity which would help them to understand the problems that dwarf progress and to contribute to their solution in their own way. This will also develop service-mindedness and devotion to the motherland.

We often repeat that India is a land of villages and that its prosperity lies in the progress of the villages. But seldom do we give our constructive thought to the manner in which the villages may be awakened to the new life that is surging the land and quickening it into a new potentiality. In this task, it is very necessary that we involve our youngstres who bubble with life

and enthusiasm and canalise enter into fruitful service in spheres like sanitation, health, education and citizenship. It is not enough if social service in rural areas is made a sporadic activity spread over a few days. Our prospective graduates must have a continuous courses, parallel to their academic pursuits, which would give them opportunities to identify themselves with the village folk, sympathise with their difficulties and harness their knowledge and talents in the service of the rural areas in an abiding manner. The massive scheme of adult and non-formal education that the Government of India has launched holds out glorious opportunities of service to the educated young. Education while drawing out the best in individuals has to flower into useful service. [Extracts from the convocation address delivered by Shri Prabhudas Patwari, Governor of Tamil Nadu, at the Andhra University] □

Education and Democracy

(Continued from page 382)

ther from instinct or from necessity, furnishes or at any rate should furnish its own checks and balances quite aside from such as may be provided in written constitutions.

Need of Flexibility : But there is this to be decided of the checks and balances of democratic politics that they are natural, not artificial, that they are flexible rather than rigid, that they can yield to public opinion and to necessity. They do sometimes enable the majority to ride down the minority; they do far more enable the minority to delay and defeat the majority. It all depends upon the conscience of the majority and how far it will conduct itself, especially when given the opportunity to have a huge majority by caring for and appreciating the points of view and the interests of the minorities. Nor should the minority be vacillating, selfish and afraid to criticize effectively when necessary. That is why a democratic constitution tends to crumble if the minority is significant and the majority is what people call a steamroller majority.

Ultimately, however, the responsibility for all this lies with the people. If they are apathetic, careless, blind, if they are frightened or nervous, if they say no more where they feel the acts deserve better exposition and support, then the people pay the price and it is right that they pay the price, the price which will lead them ultimately to slavery and the replacement of democracy by a totalitarian rule. As the fault is theirs, so too is the remedy. But how far can an uneducated, illiterate, promiscuous and easily excitable electorate cultivate these virtues?

There is another danger to which one should

make a passing reference with some hesitation. Can democracy function if emotional, spiritual or other influences are brought to bear upon the consideration of political issues? It would be unfortunate ciples and a dangerous precedent which will bring democracy to a standstill, if political decisions are forced by emotions. Whatever might have been in the scope in the days of foreign domination when opportunities were lacking for decisions to be arrived at through the democratic channels of change of Government and the will of the people being exercised, it would certainly be a negation of the true principles of democracy if such methods were to be attempted in a free and independent country which is just struggling to establish a proper democratic form of government. Thus we see the wider aspects of education that ought to be borne in mind and cultivated with assiduity if democracy is to function properly.

But the education of the youth of the country depends not merely on what they are taught but how their minds are attempted to be guided along right lines for the proper understanding of democracy. The youth of any country are not slow to imitate the example set by their elders and unfortunately the power to imitate is greater, when those examples are not hard to follow and are not quite consistent with the strict standards of rectitude. Many, therefore, are the problems connected with education but the greatest of all those problems is to train our young men into a way of life which will cannote their complete understanding and acceptance of the noble ideals of democracy and of the great principles involved in a democratic form of government and in the working of a truly democratic society. □

Conference on air and water pollution control

Inaugurating the World Environment Day and the Conference on air and water pollution control at the Indian Institute of Technology, Bombay, Prof. M.G.K. Menon, Secretary in the Department of Science and Technology, said that the Environment Day had a special significance in view of the year being the International Year of the Child. He called for concentrated efforts on problems of every day life and urged the scientists and planners for ensuring a reasonable quality of life for the children. Environment was not a problem of pollution but was the future of mankind. Man had lived on this earth for millions of years and very large part of it was now over populated

had to develop within the framework of environment.

Prof. A.K. De, Director of the Institute welcomed the guests and expressed the hope that deliberations of the conference would provide the guidelines for ensuring better control of the environment.

Prof. K.S. Karanth delivered his keynote address on 'total environment' and Dr. A.K. Ganguly, National Fellow spoke on 'progress of desert'.

Plea for non-interference in campuses

Dr. Hari Narain, Vice-Chancellor of Banaras Hindu University, appealed to the politicians to keep away from the campuses in

environment. After a period of four or five years they found themselves unfit to return to their own surroundings or to find gainful employment in the urban areas which led to frustration among students.

NCERT plan for non-formal education

The National Council of Educational Research and Training is planning to implement a UNICEF-assisted project which envisages imparting part-time and non-formal education to children with a view to improving the quality of their life. The Ministry of Education has approved the project which is proposed to be implemented with the collaboration of state governments. Teacher-trainees in the educational institutions will start developing problem-based and community oriented learning material to help universalisation of primary education in the country. The focus of the project will be on learners from the disadvantaged population. Radical changes have been proposed in the content and process of curriculum development. The field workers would develop the material in consultation with the learners and the community to make it relevant. A self-contained unit consisting of different episodes will be drawn from real life situations. The teachers in the training institutions would be oriented to ensure the process of curriculum decentralisation and help the trainees in the development of learning episodes. The project document emphasises the need for maintenance of question banks to enable the learners to take examination in different grades at any time of their choice.

Summer institute in Economics

The Department of Economics of the Mithila University, Darbhanga, organised recently a Summer Institute in Economics. Dr. R.K. Sharma, Vice-Chancellor of Kameshwar Singh Sanskrit University presided. Dr. Gautam Mathur, National Fellow in Economics at the Allahabad University in his papers analysed the various problems of economic

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which created the problems of consumerism. Modern science and technology had therefore a primary responsibility towards the society. Prof. Menon pleaded for Gandhian concept providing for simpler way of life, food shelter, recreation and education. He was happy to note that the Indian Institute of Technology, Bombay had introduced a two year multi-disciplinary post-graduate programme on environmental science and engineering. He suggested for giving a course on environmental engineering, to the chemical engineers and chemists. The rural areas had been neglected all along and become an unattractive place to the people. To avoid rampant falling of trees in these areas, alternative fuel to the villagers should be provided. Prof. Menon said development and environment were not contradictory and we

the interest of students and country. He said recently in Varanasi that if politicians stopped projecting their ideologies in the campuses the academic life would become peaceful. Influence of different shades of ideologies which confused the policies on education and teachers apathy towards students were the main factors of unrest in the campuses. Dr. Hari Narain said the country had used the students in the independence struggle but now the cause before the country was to fight poverty which was possible through purposeful education and gainful employment. A large majority of students and teachers wanted the universities to function smoothly but a small number of outside elements created problems at the campuses. Our policy on education had also not guided the young boys and girls who were being uprooted from their

growth and suggested a judicious application of deficit financing.

Dr. Hargobind Singh, Vice-Chancellor of Magadh University, Dr. Madneshwar Mishra, former Vice-Chancellor of Mithila University, Prof. Divakar Jha, Visiting Professor at Patna University, Prof. B. Ganguly of Magadh University, Prof. B. Thakur and Dr. P.K. Jha of Mithila University, Prof. Bansidhar Singh of Bihar University, Dr. D.D. Guru of A.N. Sinha Institute spoke on the recent developments in economic science.

Prof. Uma Nath Jha, Dean of the Faculty of Arts at the University in his valedictory address urged the participants to utilise the knowledge acquired during the Institute for the upgradation of academic standards and solution of problems of the nation.

Asian games

Prime Minister, Shri Morarji Desai inaugurated the first meeting of the organising committee of the 1982 Asian Games which was held recently in New Delhi. He urged the sportsmen, officials and sports organisations to concentrate their efforts on making the games a success. The Prime Minister asked the committee to provide a proper environment for training and conditioning of sportsmen so that the country's image could be held with dignity.

Dr. P.C. Chunder, Union Education Minister said at the meeting that elaborate and well-planned schemes for training of teams for 1982 Asian Games be drawn up so that the country could have a fair share of glory. The Union Ministry of Education would be willing to offer all assistance to implement these schemes. Dr. Chunder referred to the Prime Minister's observations at the meeting that the performances of our teams were being affected through poor training. The training institutions in Patiala and other places would be willing to be associated in coaching schemes drawn up by the organising committee and the national federations for training of our sportsmen. Optimum use could be

made of various cultural agreements by inviting teams and coaches from other countries for training of our sportsmen. The sportsmen could also be sponsored abroad under these agreements. Dr. Chunder reiterated the need for making sincere efforts in preparing for the games to meet the aspirations of our people.

Shri Vijay Kumar Malhotra, President of the organising committee said that the committee had approved the following nineteen games: archery, athletics, badminton, basketball, boxing, equestrian, football, cycling, golf, gymnastics, hockey, shooting, swimming, table tennis, tennis, volleyball, weightlifting, wrestling and yatching. Kabaddi and Kho-Kho will be organised as demonstration games. In case Kabbadi was included as regular game with the approval of the Asian Games Federation, cycle polo will be included as demonstration game. The games will now be organised from October 31 to November 14, 1982.

Sports policy

The All-India Council of Sports has submitted the report of the draft committee on Sports Policy to the Education Ministry which is expected to convene a meeting of the various authorities to discuss the recommendations. Shri M.R. Krishna, MP and Chairman of the drafting committee said recently in Bangalore that the recommendations of the Committee had been approved by the Council. The draft policy has suggested involvement of people in sports and preparation of selected players for international competitions. The various sports councils, federations, associations and educational institutions have been recommended to be brought closer to coordinate and promote sports effectively. The committee had recommended that the programme of sports and games should be discussed with the Planning Commission and its budget should be discussed as a separate item instead of treating it as a part of the Education Ministry's budget. Sports should

be made compulsory in educational institutions all over the country. The document suggests creation of additional facilities for the development of sports at village, district and state levels. Sports federations have been assigned additional responsibilities to organize and promote sports and games. Establishment of special hostels in states for talented boys and girls have been recommended.

Survey of rural population by Madras Medical Institute

The Syndicate of the Madras University at its recent meeting was informed that the Department of Science and Technology of the Govt. of India has sanctioned a grant of Rs. 29.3 lakhs to the Postgraduate Institute of Basic Medical Sciences, for carrying out a survey of health and diseases of the rural population of Tamil Nadu. The Central Government had also sanctioned a project on the genetic and ultrastructural analysis of inherited diseases and disorders for which a sum of Rs. 34.2 lakhs had been sanctioned.

The Syndicate approved the pattern of restructured B.A., B.Sc. and B.Com. courses which are likely to be introduced from the next academic session.

UNESCO regional consultation

The Department of Anthropology of Ranchi University organised a meeting on UNESCO Regional Consultation on the Development of a Network of Research Institutions in Asia. Mr. Y. Kono, Director of the Cultural Studies in UNESCO emphasised the need to study the historic cities in Asia. He announced that the journal of the Asian Culture would be published from Ranchi. Prof. L.P. Vidyarthi while introducing the theme of the meeting said that Asia was not only the largest and thickly populated continent, the religions of Hinduism, Christianity, Islam, Buddhism, etc. as well as the great civilisation emerged here.

Reintegration of culture in education

Inaugurating the two-day conference of Ministers Incharge of art & culture in States and Union Territories, Dr. P. C. Chunder, Union Education Minister stressed the need for evolving a cultural policy to preserve and propagate the country's rich cultural heritage. He emphasised the need for a comprehensive survey of the country's cultural heritage, continuity of which was an important element in history. Scholars should take a closer look at tribal and rural culture which were found dynamic. Dr. Chunder said that culture should form an integral part of education. A high-level committee had been constituted to give its suggestions in this regard. There was no conflict between science, technology and culture, he added.

The conference has recommended that art and culture may be given a place in the curricula in schools at elementary and secondary level all over the country. The need for preservation and documentation of those aspects of Indian cultural traditions which were in the stage of extinction was stressed at the conference. It was felt that proper attention was not being paid for the physical preservation, conservation and cataloguing of the manuscripts. The conference suggested that special attention should be paid for the collection and documentation of oral traditions especially in the field folk literature. It was recommended that important university museums should be declared as national institutions.

University Tamil teachers conference

Shri C. Aranganayagam, Tamil Nadu Education Minister, inaugurated recently in Hyderabad the Eleventh All-India University Tamil Teachers' Conference organised by the Osmania University as part of its diamond jubilee celebrations. He said the medieval literature used as a tool for spreading Bhakti cult was not found useful for the progress of common man. The need of the

day was to develop a modern literature in a scientific way for the common man to keep pace with the fast changing times. The language teachers should become part of the mainstream of the community so that language could be used as an effective instrument for common progress. The Minister said since the syllabus for Tamil language was almost same both at the school and college level, there was not much scope for the students to learn more from the language. The minister asked the teachers to teach Tamil to those not knowing the language by adopting simple methods.

Shri B. Venkataram Reddi, Andhra Pradesh Education Minister said in his presidential address that Tamil and Telugu had much in common and closer affinity towards each other.

About 150 teachers from all over the country participated in the conference.

Technology to meet rural needs

The technology policy statement drafted by the National Committee on Science and Technology lays emphasis on self-reliance and technology geared to rural needs and relevance. Dr. Atma Ram, Chairman of the NCST said recently in New Delhi that due attention had not been given to technology aspect in the science policy. Although there had been tremendous achievements in the field of industrial and agricultural science, the masses in the country lived below the poverty line. The new policy would help to take the benefit to the rural poor. He said that the country had the third largest complement of qualified scientific and technical manpower and if a proper technology policy was implemented, the position in rural areas would change completely.

Visva Bharati organises social science congress

Dr. Surajit Chandra Sinha, Vice-Chancellor of the Visva Bharati University inaugurated the fourth session of the Indian

Social Science Congress held recently in Santiniketan. He stressed the relevance of social science as a related approach to various problems and how different disciplines could be integrated to make this feasible. There was a peculiar relevance of such studies in the content of Rabindranath's experiments in Sriniketan and Santiniketan. Shri P. K. Mukhopadhyay said that works of Tagore revealed the merit of his pioneering work and thought in the field of Social Sciences. Prof. B. K. Roy Burman spoke of the challenges faced by the modern world and emphasised the need for a proper study of social sciences. The alienated existence of man could be abolished through a meaningful approach to life. He said a multi-disciplinary exposure to meet challenges of life could be built by social sciences.

The conference deliberated in twelve sessions ranging from economics and philosophy to defence studies.

Community involvement in vocationalisation scheme

The National Council of Educational Research and Training organised recently a two-day seminar to review the implementation of vocationalisation of education in some of the States and Union Territory of Delhi. The seminar recommended that there should be flexibility in the duration of courses which should extend from one to three years. Since the general policy was to accelerate the development of rural areas it was thought that the thrust of vocational programmes at the higher secondary stage should be in rural areas. The administration of vocational education at the post secondary stage was recommended to be decentralised. The seminar reiterated the need for extending the apprenticeship programme to those who complete vocational courses at the post-secondary stage. The seminar also stressed the importance of associating the consumers and involving the community in formulation of courses and making the programme a success.

Dr. Shib K. Mitra, Director of

the Council said the scheme hinged on flexibility which was reflected in the semester pattern and in the statutes of various universities in the country.

About 50 delegates from all over the country including representatives of the Planning Commission participated in the deliberations.

Adult education programme

Dr. P. C. Chunder, Union Education Minister informed the members of the consultative committee of MPs attached to his Ministry that about 1.5 million adults had been covered under the national adult education programme during 1978-79. The target has been fixed to impart adult education to 45 lakh persons during 1979-80. The Minister said the response from colleges and universities to this scheme had been encouraging. The University Grants Commission has issued guidelines to universities to treat adult education and extension programmes as an integral responsibility which should be given a distinct status. The programmes on adult education and elementary education were complementary to each other and there was no conflict between their objectives. Dr. Chunder informed the members of the committee that the adult education programme was being evaluated by agencies which had the expertise and reputation in the field of social research. A beginning had been made in Gujarat where a quick appraisal of the work was carried out by Sardar Patel Institute of Economic and Social Research, Ahmedabad. Institutions have been identified for conducting evaluation in Maharashtra, Rajasthan, Bihar and Tamil Nadu. The government had given the highest priority to universalisation of elementary education for which a provision of Rs. 900 crores had been made for the years 1978-83.

Code of conduct for teachers

The managements of the private colleges in Tamil Nadu have drawn up a draft code of conduct for their teachers which will be

discussed shortly by a committee represented by teachers, managements and government. The code prescribes for the teachers to declare their assets and liabilities to the management on their first appointment and at an interval of every twelve months. It prohibits the staff from associating themselves with any political party or organisation. The employees of the private colleges will not be allowed to take part in any election to the legislature or local authority as per the draft code.

Calcutta to appoint department heads by rotation

Dr. R.K. Poddar, Vice-Chancellor of the Calcutta University said recently in Calcutta that the university council at its recent meeting had approved to appoint Heads of all post-graduate departments through rotation by seniority. The decision of the council would now be communicated to the Chancellor. The procedure prescribes that the Vice-Chancellor in consultation with the Pro-Vice-Chancellor will appoint the head of the department from a panel of full time permanent teachers on the basis of seniority and their capacity with regard to academic and administrative leadership. There would also be a Departmental Committee in every post-graduate department.

Workshop on methods of detecting adulteration

Dr. Madhuri Shah, Vice-Chancellor of S.N.D.T. Women's University inaugurated recently the workshop on laboratory and household methods for the detection of food adulteration held at Sir Vithaldas Thackersey College of Home Science in Bombay. Experts from Food and Drug Administration of the State Government, Consumers' Guidance Society of India, Public Health Department of Bombay Municipal Corporation and representatives from legal profession and food industries involved in the control of food adulteration were invited to speak on different aspects of the problem. Members of the academic staff gave lectures on

detection methods of adulteration commonly encountered in different food articles and helped the participants to carry out the laboratory tests. The Food and Drug Administration organised an exhibition on food adulteration for benefit of the public.

An urgent need to disseminate the information was felt among the participants who decided to carry out the testing of various food articles and make available the facility to the community in their vicinity.

The Workshop was sponsored by the University Grants Commission.

National policy on education

Dr. P. C. Chunder, Union Education Minister informed recently the members of the consultative committee of Parliament attached to the Education Ministry that the draft national policy on education was expected to be discussed in the monsoon session of Parliament. The draft was prepared after a series of consultations with the state governments, educationists, teachers organisations and was presented to the Parliament during the budget session. Dr. Chunder said that about one and a half million adults were covered by the adult education programme during the year. The members of the committee were informed that a central commission on primary and secondary education would find it physically impossible to deal with over 6 lakh schools in the country. The Union Govt's capacity to finance such a Commission was also limited.

Plan to provincialise deficit colleges in Assam

Shri Lakshyadhar Chaudhury, Assam Education Minister said in Gauhati recently that the state government was planning to provincialise the deficit colleges in a phased manner with a view to imparting uniform education with better facilities. He said that the state government would take over fourteen colleges under the scheme during the current financial year.

Teaching and research in Anthropology

The Department of Anthropology of Ranchi University organised recently a three-day symposium on the status of teaching and research in Anthropology in Bihar. Shri Bhupender Singh, Director of the Tribal Affairs in the Union Ministry of Home Affairs in his inaugural address stressed the need for re-orientation in teaching and research of the subject.

Dr. L.P. Vidyarthi, Director of the seminar, traced the history of anthropology, its teaching and research in the world, particularly in Bihar.

The symposium met in five sessions and made suggestions for further study and research in the discipline. The seminar sponsored by the University Grants Commission, was attended by scholars including the representatives of Survey of India.

Entrance test for postgraduate admission

Sri Venkateswara University, Tirupati, will conduct an entrance test for candidates seeking admission to the postgraduate courses. The candidates will choose the subject for the test out of the subjects which were offered at the degree level. In the case of postgraduate courses which are not offered at the graduate level, the candidates will have to choose one of the subjects studied by them in Part II of the degree examination.

Economic use of plants suggested

Prof. Sher Singh, Union Minister of State for Defence, Science and Technology, in his inaugural address at the 192nd anniversary of the Indian Botanic Garden, stressed the importance of research on economic use of plants in the country. The Botanists should concentrate on this aspect in addition to their basic research. The forest and the agricultural departments looked after a limited number of plants of their in-

terest leaving a large variety of flora to be studied and utilised. Some plants which had great medicinal value were now becoming extinct. Conservation of these plants will be helpful in balancing the ecosystem and provide raw-material for drugs and medicines. Prof. Sher Singh emphasised the need for proper maintenance and development of the gardens for educational purposes.

Greater use of animal resources suggested

Dr. N.S. Ramaswamy, Director of the Indian Institute of Management, Ahmedabad, has suggested for the coordinated development, management and utilisation of animal energy resources in the country. He said recently in New Delhi that animal energy resources were very important to the rural economy and little attention had been paid in the field so far. The investment in the animal system in the country exceeded Rs. 25,000 crores. The country had ignored the utilisation of animal energy resources as appropriate technology which could be achieved at a small cost. There was also much to be done in the redesigning of implements, tools and machinery using animal power.

Panjab Varsity organises NSS camps

The NSS Department of Panjab University organised about forty-five camps during the summer vacation in which about three thousand students including one thousand girls participated. The 10-day camps under the Youth for Rural Reconstruction Programme were held at various places in the districts of Ludhiana, Ferozepore and Hoshiarpur and the union territory of Chandigarh.

The projects undertaken by the student volunteers included earth-work on link roads, health education and provision of medical facilities with the collaboration of the health authorities, mass immunisation of children, adult education and promotion of recreational and cultural activities.

Pantnagar Varsity promotes nuclear research

Pantnagar University is using radioisotopic and other allied nuclear techniques for basic and applied research in improving agricultural productivity. Varieties of important pulse crops have been screened by using radioactive carbon dioxide to find out their capacity to utilise solar energy. The process would enable to select the crops which have the highest yield potential. The biochemical role of micronutrients in plant growth is being studied using radioactive isotopes.

Bihar Varsities discuss adult education programme

The representatives of the Universities of Bihar, Mithila and Kameshwar Singh Darbhanga Sanskrit met recently in a 2-day workshop to discuss the various ways and means to launch adult education programme in their areas. The workshop was inaugurated by Dr. S. Rahman, Vice-Chancellor of Bihar University who expressed his university's determination to implement the programme.

The University Grants Commission sponsored the workshop. The UGC laid great stress on the participation of universities and colleges in the literacy drive and other adult education programmes. One-fourth of the illiterates of the world lived in our country and special efforts were required to tackle the problem. The percentage of literates in Bihar was the lowest barring only one or two states and progress on adult education programme was also not encouraging. The universities in the State had therefore a greater responsibility to educate the masses.

The State Director of the Adult Education said the government could not achieve the goal without the cooperation of universities and colleges. Illiteracy was an obstacle in the socio-economic progress of the state and adult education was aimed at providing immediate benefits of self-consciousness and professional effi-

ciency. He said that the state government was planning to appoint adult education officers in the various districts.

Examinations in Bihar Varsities

The Bihar State Inter-University Board at its recent meetings held in Patna under the presidency of the Chancellor and the State Chief Minister separately reviewed the position of examinations in different universities. The Vice-Chancellors of the state universities participated in the meeting. The Chief Minister requested the Vice-Chancellors to take necessary steps to hold examinations in their universities in time and assured them of government help in fair conduct of these examinations. It was observed that though intermediate examinations of different universities were not behind the schedule, the degree and post-degree examinations were very late. The Vice-Chancellors were requested to regularise the degree and post-degree examinations by the end of the year and the middle of 1980 respectively. The Puja vacation will be utilised to complete the schedule of examinations. The meeting decided to remove the gap between examinations of two papers in order to restrict the period of examination schedule. The examination results will be compiled and published within a period of sixty days.

University institutions in the Commonwealth

The Association of Commonwealth Universities, 36, Gordon Square, London WC1H 0PF, has released recently the twenty-third edition of the list of university institutions in the Commonwealth. The list contains the names of more than three hundred Commonwealth institutions and also gives the names of the executive heads of such institutions and of the officers to whom general enquiries should be addressed. The Association will supply one copy of the list free on request. Larger orders will be charged at cost price.

Assam college principals confer with Gauhati VC

A delegation of Assam College Principal's Council discussed recently the various problems faced by non-government affiliated colleges with Dr H.K. Baruah, Vice-Chancellor of Gauhati University. It was pointed out at the meeting that the colleges should be treated as an inseparable part of the university as these institutions were responsible for teaching about ninety per cent of the students who received higher education in the State. The academic programmes aiming at improving higher education in the State could not afford to neglect the affiliated colleges. The Council put forward a number of suggestions for improving of colleges which included establishment of research units in colleges, frequent interaction between college and university teachers, organisation of seminars and symposia, setting up of a central machinery in the matter of physical development, changes in conduct of examinations and introduction of an examination system which was socially acceptable and useful to the students. The Vice-Chan-

cellor assured the Principals that necessary action will be taken soon on their suggestions.

Personal

1. Shri Girija Prasad Pandey, a retired IAS Officer, has taken over as Vice-Chancellor of Lucknow University.
2. Prof. R. K. Poddar has taken over as Vice-Chancellor of Calcutta University.
3. Dr. R.S. Mishra has taken over as Vice-Chancellor of Kanpur University.
4. Dr. R. Dwarakinath has taken over as Vice-Chancellor of University of Agricultural Sciences, Bangalore.
5. Dr. Sukhdev Singh has taken over as Vice-Chancellor of Jawaharlal Nehru Krishi Vishwa Vidyalaya.
6. Prof. K.M. Lodha has taken over as Vice-Chancellor of University of Jodhpur.

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A list of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Bhatt, G. M. J. Some problems in functional analysis. University of Saugar.
2. Bhattacharya, Manoranjan. On some problems connected with special functions. Utkal University.
3. Sengupta, Prabirkumar. Some problems on Eigen function expansions involving a pair of second order differential systems. University of Calcutta.
4. Singh, S. L. Fixed point theorems in metric and Banach spaces. Kumaun University.
5. Singh, Shyam Kishore. Second order asymptotic solution of the problem of the motion of artificial satellite. University of Bihar.
6. Swami, Sidram Panchakshari. A study of certain Riemannian spaces in general relativity. University of Poona.

Physics

1. Asgekar, Vivek Bhattachandra. Design studies of microton electron accelerator with application to the Cherebkov radiation in millimeter wave range. University of Poona.
2. Ghosh, Sujata. Biophysical studies on *Vibrio cholerae* DNA. University of Calcutta.
3. Hingane, Laxman Sitaram. Theoretical studies in aeronomy. University of Poona.
4. Lakshminarayana, Sreerama. Beta gamma directional correlations and nuclear structure. Andhra University.
5. Pant, T. C. Energy transfer and ion-phonon interactions in luminescent systems. Kumaun University.
6. Ratnam, Sri Rangam Raja. Some studies on meteors and sporadic—E. Andhra University.
7. Sarkar, Swapan Kumar. Radioclimatological effects on tropospheric radiowaves propagation over the Indian sub-continent. University of Delhi.
8. Sarma, Akella Viswanatha. Ultrasonic study of liquids. Andhra University.
9. Sengupta, Kamalendu. Microwave absorption and structure of polar organic molecules in the liquid state. University of Calcutta.
10. Sharma, Hari Om. Lattice anharmonicity of diamond-structure crystals and alkali metals. University of Delhi.
11. Sudhakara Reddy, Dandala. Internal conversion studies in ^{70}Sc , ^{122}Sb , ^{125}Te , ^{139}Xe and ^{139}Ce . Andhra University.

Chemistry

1. Agte, Vaishali Vilas. Sparing effect of certain non-essential amino acids over the requirements of essential amino-acids in a marginally subsisting population with special reference to preschool children. University of Poona.
2. Amirtha, N. Kinetics of the addition of iodine monochloride to olefins in solution. University of Madras.
3. Balse, M. N. Tetrahydrobenzothiazoles of pharmacological significance. Karnatak University.
4. Dasgupta, Archana. Theoretical studies on non-benzenoid hydrocarbons. University of Calcutta.
5. Doke, Sham Narayan. Involvement of lysosomal enzymes in fish spoilage. University of Poona.
6. Duhan, S. P. S. Application of nitrogen and growth affecting chemicals on the productivity and quality of essential oil of *Mentha piperita* Linn. Kumaun University.
7. Gajinder Paul. Kinetics and mechanism of solidification from binary system. University of Jammu.

8. Gopalan, S. Studies on buffalo casein. University of Madras.

9. Jadhav, Prabhakar Kondaji. Studies in sesquiterpenes: Newer aspects of longifolene. University of Poona.

10. Jain, Rakesh Kumar. Chemical studies of some naturally occurring polyphenolics and their derivatives. University of Delhi.

11. Kale, Madhuri Madhav. Electrical properties of semi-conducting vanadium phosphate glasses. University of Poona.

12. Krishna Reddy, L. Studies on the solvent extraction of lantoanides and actinides. Sri Venkateswara University.

13. Kulkarni, Bharati Subhash. Synthesis of terpenes and some transformations of small membered ring compounds. University of Poona.

14. Mahajani, Saroja. Statistical aspects of analysis of organic functional groups. University of Saugar.

15. Mandale, Ananda Balavant. Some studies on the electrical properties of chalcogenide and oxide films. University of Poona.

16. Mohanraj, S. Studies in the chemistry of Natural products: Pyrrolizidine alkaloids of *Heliotropium curassavicum* Linn. University of Madras.

17. Nandi, Jayashree. Molecular forms, comparative structural characteristics and genetic implications of hemoglobins in local wild murines. University of Poona.

18. Nayak, Amalendu. Synthesis and application of heterocyclic compounds. Utkal University.

19. Prasada Rao, Muvvala Sanni. Some studies on the oxalates and analytical chemistry of thallium. Andhra University.

20. Patra, Maheswar. Studies on heterocyclic compounds. Utkal University.

21. Prabhudesai, Arun Vinayak. Chemical synthesis of lipids. University of Poona.

22. Kama Kant. Complexes of cobalt (II), nickel (II) and copper (II) carboxylates with oxygen donors. University of Jammu.

23. Rangadurai, A. Mechanism of oxidation of alcohols and α -amino acids by 1-chlorobenzotriazole. University of Madras.

24. Sankranarayanan, A. S. Chemistry and Pharmacology of Indian medicinal plants. University of Madras.

25. Tribhuwan, Rajanikant Chandrakant. Mechanism of alkaline phosphatase formation in *Escherichia coli* and acid phosphatase formation in *Saccharomyces cerevisiae*. University of Poona.

26. Vasantrao, Karajagi Gururaj. Structural investigations of some metal complexes. Karnatak University.

Earth Sciences

1. Bhattacharyya Nikhilchandra. Nature and origin of the Arkasani granophyres between Kharawan and Kolabira in the Singhbhum District, Bihar. University of Calcutta.

2. Chadha, Satish Kumar. Sedimentological studies of the rock units of the area between Jangal Gali and Salal, Jammu and Kashmir State. University of Jammu.

3. Gergan, Joseph Thsetan. Stratigraphic and tectonic studies on the Indus suture belt between Dras and Kargil. University of Jammu.

4. Parashar, Vishvas Tryambak. Geology of the area around Ammapur and Hunasagi, Gulbarga District, Karnataka State, India. University of Poona.

5. Uppal, Subash Chander. Studies on the bant granites, Baramulla District, Kasmir Himalaya. University of Jammu. Engineering & Technology

1. Balasubramanian, S. A stochastic approach to the analysis of structures subjected to random excitations. University of Poona.

2. Somasundaram, M. V. Short term flow prediction for semiarid watersheds characterised by seasonal rainfall. University of Madras.

BIOLOGICAL SCIENCES

Biochemistry

1. Chattopadhyay, Amitabha. Studies in pigment metabolism in relation to vitiligo. University of Calcutta.

2. Chempakam, B. Metabolism of glycoproteins in relation to Diabetes mellitus. University of Kerala.

3. Jahagirdar, Lalita Venkateshrao. Trace elements and their effect in their deficiency on amino acid catabolizing enzymes. Marathwada University.

5. Sivaramakrishna Pillai, S. Studies on the intestinal phosphatases in experimental diabetes and atherosclerosis in rabbits. University of Madras.

Botany

1. Bhattacharyya, Dipasri. A study of the chromosomal and associated changes in the evolution of some species propagating principally through vegetative means with special reference to those induced by physical agents. University of Calcutta.

2. Ghosh, Parthadeb. Induced mutation and tissue culture in certain legumes. University of Calcutta.

3. Kannabiran, B. Pharmacognostical investigations on some Indian Medicinal plants. University of Madras.

4. Krishnaswamy, Lakshmi. Phytochemical investigations on seeds of *Rhynchosia minima* (Linn) DC. University of Delhi.

5. Mandavgane, Rekha Dilip. Floristic and palynological studies on some plant groups from Western Maharashtra and Goa. University of Poona.

6. Mathew, Abraham. Cytological studies on the South Indian Compositae. University of Kerala.

7. Narasinga Rao, Putcha Srirama Lakshmi. Cytogenetic studies of autotetraploid pearl millet, *Pennisetum typhoides*. Andhra University.

8. Pawar, Tukaram Krishna. Studies on fungi in rhizosphere, phyllosphere and flowers of *Parthenium hysterophorus*, L. with special reference to their biochemical and physiological characters. University of Poona.

9. Somasundaram, T. Mitochondriogenesis: Studies with synchronous yeast. Madurai Kamaraj University.

10. Subbarangaiah, Goddam. Studies on autecology of some Gigartinales of the Visakhapatnam Coast. Andhra University.

11. Thanki, Yugesbchandra Jatashankar. Development and structure of some cucurbitaceous fruits. Sardar Patel University.

Zoology

1. Biswas, Bijan Kumar. Studies on spider fauna of Calcutta and vicinity. University of Poona.

2. Gangopadhyaya, Jayasri. Effort of population stress on the histophysiology of avian endocrine organs. University of Calcutta.

3. Gokhale, Vrinda Anant. Studies on the mechanism of action of urethane in the chick embryos cultivated in vitro. University of Poona.

4. Gupta, B. B. Studies on the bionomics and control of the Indian gypsy moth, *Lymantria obfuscata*. Kumaun University.

5. Gupta, Subhash Chander. Karyology of some Jassids (Homoptera: Jassidae). University of Jammu.

6. Katdare, Meena Sharad. Studies on the development of skin of the garden lizard, *Calotes versicolor*. University of Poona.

7. Katdare, Sharad Moreshwar. In vitro studies on the effects of actinomycin D on the morphogenesis of chick embryos in understanding the mechanism of its action. University of Poona.

8. Krupanidhi, S. Studies on the properties of the blood of the garden snail, *Cryptozonena ligulata* (Ferussac) with special reference to aestivation. Sri Venkateswara University.

9. Rama Krishna Rao, Sunkari. Studies on polyclad turbellarians of Visakhapatnam Coast. Andhra University.

10. Rama Seshiah, Movva. Biometric and biochemical studies on the anabantid fishes, *Anabas testudineus* (Bloch, 1795) and *A. oligolepis* (Bleeker, 1885) from Lake Kolleru in Andhra Pradesh. Andhra University.

11. Suri, Surinder Nath. Studies on some aspects of bioenergetics in *Puntius sophore*, Ham. University of Jammu.

12. Wadekar, Gauri Gopal. Effects of cytochalasin H on the developing embryos of frog, *Microhya ornata*. University of Poona.

Medical Sciences

1. Bhattacharyya, Sibsankar. Physiological studies on the effects of hormones on liver of toad. University of Calcutta.

2. Ghosh, Archana. Influence of gestogen on some brain activity. University of Calcutta.

3. Paliwal, Dinesh Kumar. Studies on *Cryptococcus neoformans* and some allied yeast-like fungi with special reference to their ecology. University of Delhi.

Agriculture

1. Basu, Tapan Kumar. Effect of ethrel and ancymidol on growth and flowering in ornamentals. University of Calcutta.

2. Dasgupta, Malabika. Studies on the viability of wheat, *Triticum aestivum* L. seed. University of Calcutta.

3. Ghoshal, Samir Kumar. Uptake and distribution of major nutrients in crop plants under moisture stress. University of Calcutta.

4. Mandal, Balaidas. Genetical studies in jute, *Cochorus capsularis* and *C. olitorius* in relation to some aspects of productive breeding. University of Calcutta.

5. Mehetre, Subhash Sonyabapu. Studies related to the glandless characters in *Gossypium hirsutum* L. cotton, (II) Cytological studies in the genus *Gossypium* L.; and (III) studies on male sterility in *Gossypium hirsutum* L. cotton. Mahatma Phule Krishi Vidyapeeth.

6. Singh, Anil Kumar. Dissipation of disulfoton and

monocrotophos on pulse crops. Haryana Agricultural University.

Veterinary Sciences

1. Baruah, Prafulla Kumar. Studies on some aspect of *Neoschistosomum vitulorum* infection in buffalo calves. Haryana Agricultural University.

2. Basak, Dipak Kumar. Studies on the pathology of premature and mature amphistomes in cattle, buffalo and goat and their immunological response. University of Calcutta.

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Post and Department

- 1 Reader in General Economics—Economics
- 2 Reader in Econometrics—Economics
- 3 Reader in Demography—Economics
- 4 Lecturer in Agricultural Economics—Economics
- 5 Reader in Sociology—Sociology
- 6 Reader in Cultural Anthropology—Sociology
- 7 Professor (with specialization in Commercial Law)—Law
- 8 Professor—Law
- 9 Reader—Law
- 10 Reader—Law
- 11 Professor of Theoretical Physics—Physics
- 12 Sir Dorabji Tata Reader in Pharmaceutical Chemistry — Chemical Technology
- 13 Reader in Chemical Engineering—Chemical Technology
- 14 Singhanee Lecturer in Chem. Engg.—Chemical Technology
- 15 Lecturer in Food Technology—Chemical Technology

The pay-scales of the posts are:

Professor—Rs. 1500-60-1800-100-2000-125/2-2500

Reader—Rs. 1200-50-1300-60-1900, and
Lecturer—Rs 700-40-1100-50-1600.

All posts carry the benefits of Dearness Allowance, House Rent Allowance and Compensatory Local Allowance at the rates sanctioned by the Executive Council from time to time. All posts also carry the benefits of the University Provident Fund. A higher starting pay may be given to a person possessing high qualifications. The appointments to the posts will be on probation for two years but the probationary period may be reduced by the Executive Council in special cases. Other things being equal preference will be given to candidates from backward classes. The posts of Lecturer are reserved for candidates belonging to scheduled castes and scheduled tribes and will be filled up by appointment of such persons only as shall satisfy the requirements regarding qualifications, experience etc. laid down for the posts, provided, however, that if no candidate is available from the scheduled castes and scheduled tribes, the posts will be filled up by appointment of duly qualified persons from among the other candidates.

The minimum qualifications prescribed for the posts, other than the posts at serial numbers 12 to 15 in the Univer-

sity Department of Chemical Technology, are as under:

Professor

An eminent scholar with published work of high quality, actively engaged in research. Ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Reader

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

Lecturer

(a) A Doctors' degree or research work of an equally high standard; and

(b) Consistently good academic record with 1st or high 2nd class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects.

The Executive Council may relax any of the qualifications prescribed in (b) above provided that the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard.

If a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, the Executive Council may appoint a person possessing a consistently good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation

Candidates for being eligible for recruitment to the posts of Lecturer must have 1st or high 2nd class (B in the seven point scale) at the Master's level and for determining consistently good academic record, average of 50-55

per cent marks may be expected at the two examinations prior to the Master's examination.

The additional qualifications prescribed for the posts at serial numbers 1 to 11 mentioned above are as under:

1. **Reader in General Economics**—Specialization in Economic Theory, Fiscal and Growth Economics.
2. **Reader in Econometrics**—Specialization in Econometric Theory and Applied Econometrics and/or Mathematical Economics. Preference will be given to a candidate with a good back-ground in Economics-Statistics.
3. **Reader in Demography**—Specialization in Economic Demography, Population Problems and Technical Demography.
4. **Lecturer in Agricultural Economics**: Specialization in Agricultural Economics. Preference will be given to a candidate having some field experience.
5. **Reader in Sociology**—Doctoral degree or equivalent published work must be in Sociology. Experience of guiding students in research.
6. **Reader in Cultural Anthropology**—Doctoral degree or equivalent published work must be in Cultural or Social Anthropology. Experience of guiding students in research.
7. **Professor (with Specialization in Commercial Law)**—Teaching experience of ten years must be at the post-graduate level. Professional experience can be considered as equivalent to teaching or research experience.
8. **Professor (Law)**—Specialization in Jurisprudence and/or Criminal Law. Teaching experience of ten years must be at the post-graduate level. Professional experience can be considered as equivalent to teaching or research experience.
9. **Reader (Law)**—Specialization in Criminal Law and/or Constitutional Law. Professional experience can be considered as equivalent to teaching or research experience.
10. **Reader (Law)**—Specialization in Law of Taxation and/or Labour Law. Professional experience can be considered as equivalent to teaching or research experience.
11. **Professor of Theoretical Physics**—Independent research work of recognized merit in the area of Theoretical Physics and experience of teaching post-graduate classes. Aptitude for doing theoretical work relating to the

experimental research programme of the Department is desirable.

The minimum qualifications prescribed for the posts at serial numbers 12 to 15 in the University Department of Chemical Technology are as under:

12. Sir Dorabji Tata Reader in Pharmaceutical Chemistry

- a) A doctorate degree with specialization in non-analytical aspects of Pharmaceutical Chemistry or Organic Chemistry in addition to the following:
First Class at B.Sc. (Tech.) (Pharmaceuticals)

Or

First Class at B.Pharm. and M.Pharm by research

Or

First Class at M.Pharm. by papers with specialization in Pharmaceutical Chemistry.

Or

First Class at M.Sc. in Organic Chemistry with specialisation in Drugs.

- b) Post-doctoral research work of high quality in non-analytical aspects of Pharmaceutical Chemistry or Organic Chemistry preferably involving routine use of NMR.
- c) Thorough knowledge of Reaction Mechanisms and stereochemistry with reference to Drugs and Intermediate as well as command over the use of modern tools with emphasis on NMR and Mass Spectroscopy.
- d) Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.
- e) About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidate with outstanding research work.

13. Reader in Chemical Engineering

- a) An outstanding academic record and a basic degree in Chemical Engineering as well as a Doctorate degree. Research publications in journals of international standing. At least five years' research/professional experience.
- b) Specialization in Chemical Reaction Engineering with specific reference to Industrial Catalysis or Reactor Modelling and Design or Mass Transfer with specific reference to interaction between Hydrodynamics and Mass transfer, characteristics of fluid-fluid contractors.

14. Singhanee Lecturer in Chemical Engineering

- a) A good academic record with a doctorate degree in Chemical Engineering

Or

A good academic record with first or high second class Master's degree in Chemical Engineering or an equivalent degree with at least one years' research or professional experience.

- b) Specialization in the field of mass transfer/fluid mechanics/instrumentation and process control will be desirable.

15. Lecturer in Food Technology

Essential

- a) A good academic record with first class Bachelor's degree in Food Technology.
- b) First or high second class Master's degree in Food Technology.

Desirable

- a) A Doctorate degree in Food Technology or research work of high standard.
- b) Experience of teaching graduate classes in Food Technology.
- c) Industrial experience of one or two years.

Eight copies of the application, in the prescribed form, should be sent in an envelope superscribed with "Application for the post of ————" so as to reach the Registrar (Teaching Appointments Unit), University of Bombay, Bombay-400032, on or before 10th August, 1979. Candidates from abroad, Andaman & Nicobar Islands and Lakshadweep may send their applications so as to reach the Registrar on or before 24th August, 1979. Applications received after the last date will not be considered. Prescribed forms of application can be had, free of charge, from the Teaching Appointments Unit, Registrar's Office, (Room No. 110), University of Bombay, Fort, Bombay-400032.

Requests for supply of forms by post should be made sufficiently in advance.

Candidates should send with every application a crossed Indian Postal Order or a crossed Demand Draft on a scheduled bank for Rs. 10/- drawn in favour of the Registrar, University of Bombay, Bombay, payable at Bombay, as application fee. Candidates who apply for more than one post should send separate applications along with the requisite fee by means of a crossed Indian Postal Order/Demand Draft. Money orders or cheques or cash will not be accepted by the University. The fee will not be refunded once an application has been received by the University.

Incomplete applications and applications without the requisite fee will not

be considered. Applications on plain paper will not be considered.

Candidates are advised to satisfy themselves before applying that they possess the prescribed qualifications and it is for the candidates themselves to ensure that they possess the prescribed qualifications. No enquiry asking for advice as to eligibility will be entertained.

Candidates called for interview will have to present themselves at their own expenses.

Canvassing, direct or indirect, will be a disqualification.

P. S. Sawant
OFFG. REGISTRAR

**BIDHAN CHANDRA KRISHI
VISWA VIDYALAYA
P.O. MOHANPUR, WEST BENGAL
CORRIGENDUM**

In respect of Advertisement No. APPTT/5/79 for post at 'B'—Professor of Agricultural Engineering (One post) qualifications should read as **Qualifications: Essential:** i) Consistently good academic record with first or high second class Master's Degree or recognised equivalent qualification in Agricultural Engineering with specialisation in Farm Machinery & Power/Process Engineering/Soil & Water Engineering following a good Bachelor's Degree in Agricultural/Mechanical/Civil Engineering; ii) A Doctoral Degree in Agricultural Engineering at (i);

(iii), (iv), (v) & other conditions will however remain unchanged.

A. K. Mitra
REGISTRAR (Actg.)

**ALL INDIA INSTITUTE OF
MEDICAL SCIENCES**

**ANSARI NAGAR, NEW DELHI-16
Advertisement No. 2/79-Estt.-I.**

Applications will be received by the Director, All India Institute of Medical Sciences, Ansari Nagar, New Delhi-16 from the Indian citizens upto the 16th August, 1979 on the prescribed forms available on request for the following temporary posts.

1. Professor: One for Anatomy.

Pay: (i) Rs. 2400-100-2500/125/2-3000 inclusive of N.P.A. for medical officers.

(ii) Rs. 1500-60-1800-100-2000-125/2-2500 for non-medical Officers.

Note:— For the post of Prof. of Anatomy both medical and non-medical candidates will be considered.

2. Associate Professor: One each

(i) Cardiology (ii) Dermatology (iii) Medicine (iv) Neuro-Surgery.

Pay: Rs. 2000-75-2525 inclusive of N.P.A.

3. Assistant Professor: One each for (i) Anatomy (ii) Anaesthesiology (iii) Forensic Medicine (iv) Neurology (v) Pathology (vi) Two each for Obst. & Gynaecology (vii) Ophthalmology for Dr. R. P. Centre for Ophthalmic Sciences and (viii) Cardiology (including one for Cardio-thoracic Centre).

Pay: (i) Rs. 1700-60-2060 inclusive of N.P.A. for medical officers.

(ii) Rs. 1200-50-1300-60-1600 for non-medical officers.

Note:—For the post of Asstt. Prof. of Anatomy both medical and candidates non-medical will be considered.

4. Lecturer: One each for

(i) Biophysics (ii) Cardiology (iii) Microbiology (iv) Pharmacology (v) Nuclear Medicine (vi) Orthopaedics (vii) Forensic Medicine (viii) Ocular Biochemistry for Dr. R. P. Centre for Ophthalmic Sciences (ix) Paediatrics Surgery and (x) Three for Medicine.

Pay: (i) Rs. 1400-60-1760 inclusive of N.P.A. for medical officers.

(ii) Rs. 700-40-1100-50-1600 for non-medical officers.

Note:

(i) For the post of Lecturer in Biophysics, Microbiology, Pharmacology, Nuclear Medicine and Ocular Biochemistry both medical and non-medical candidates will be considered.

(ii) The Post of Lecturer in Forensic Medicine is sanctioned for the Post Mortem Project financed by the Delhi Administration temporarily for the duration of the project.

(iii) The posts of Lecturer in Microbiology and Paediatrics Surgery are on leave vacancy for a period of one year.

5. Senior Research Officer (Cytopathology): One

Pay: Rs. 1100-50-1600 plus N.P.A.

6. Dietician (Metabolic): One

Pay: Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200.

7. Electronic Engineer: One (For Neuro-Sciences Centre)

Pay: Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200.

8. Librarian Selection Grade: One

Pay: Rs. 1100-50-1600.

9. Chief Technical Officer: One (For Central Workshop)

Pay: Rs. 1100-50-1600.

10. Health Educator: One

(Reserved for S/tribes candidates. In case of non-availability of suitable S/tribes candidates, the post would be treated as unreserved and selection will be made from amongst other candidates).

Pay: Rs. 550-25-750-EB-30-900.

Note

The incumbent of the post of Health Educator will be required to stay at rural Health Centre Ballabgarh.

11. Junior Research Officer: One, each for (i) Cardiology and (ii) Biostatistics.

Pay: Rs. 650-30-740-35-800-EB-40-950 plus N.P.A. for medical officers only.

12. Chemist (Biochemistry): One

(Reserved for S/Tribes candidates)

Pay: Rs. 650-30-740-35-810-EB-35-880-40-1000-EB-40-1200.

13. Publication-cum-Public Relation

Officer: One

Pay: Rs. 1100-50-1600.

Note

The upper age limit for this post is 45 years.

14. Nursing Superintendent: One

(For Dr. Rajendra Prasad Centre for Ophthalmic Sciences).

Pay: Rs. 700-40-900-EB-40-1100-50-1300.

15. Laundry Mechanic: One

(Reserved for S/Castes candidates)

Pay: Rs. 260-6-326-EB-8-350.

Upper age limit

50 years for teaching post and 30 years for non-teaching posts relaxable for Government servants, scheduled castes and Scheduled Tribes candidates or otherwise exceptionally qualified candidates.

Note: The essential qualifications are relaxable at the discretion of the Selecting Authority.

Application form and detailed information sheets can be obtained either personally or on written requests accompanied by a self addressed stamped (0.55 paise) envelope (23 cm × 8 cm.)

PANJAB UNIVERSITY CHANDIGARH

Advertisement No. 13/79

The Vice-Chancellor will be glad to correspond with eminent scholars who have won recognition and published meritorious work in the field of Vedic Literature and Culture for appointment as Professor in Dayanand Chair for Vedic Studies. This is a tenure appointment for a period of three years in the first instance. The post will be in the grade of Rs. 1500-60-1800-100-2000-125/2-2500 with other ancillary benefits.

Those interested are required to write to the Vice-Chancellor enclosing their bio-data with a list of their published work by 7.8.1979.

OSMANIA UNIVERSITY HYDERABAD-500 007 (A.P.)

Advertisement No. 11/79

Applications, in the prescribed forms together with the registration fee of Rs. 5/-, are invited for the following posts in the University service, so as to

reach the undersigned on or before 10th August, 1979.

Post & Specialization

Professor of Electrical Engineering—Power System Engineering with special emphasis on E.H.T.

Lecturer in Mechanical Engineering—Heat power/Machine design/Production Engineering / Industrial Engineering / Refrigeration and Airconditioning/Welding.

Scale of Pay

Professor—Rs. 1500-60-1800-100-2000-125/2-2500

Lecturer—Rs. 700-40-1100-50-1600

Age

Professor—Not above (50) years

Lecturer—Not above (35) years

(i) Age limit does not apply to the employees of this University.

(ii) Relaxation in age to the extent of five years may be granted to candidates belonging to SCs., STs., and BCs., for the posts of Lecturers only.

(iii) Age relaxation can be considered in deserving cases.

14%, 4% and 25% reservations are made for Scheduled Castes, Scheduled Tribes and Backward Classes respectively only in the case of Lecturers.

Note

Candidates who have submitted their dissertation/thesis and awaiting the results can also apply for the post of Lecturers in Mechanical Engineering.

Application forms can be had from the Director, Department of Publications and University Press, Osmania University, Hyderabad-500 007, A.P. (India) on payment of Rs. 4-50 in person or by money order or by a postal order UNCROSSED made payable to the Director, University Press, O. U. by sending a self-addressed envelope (11½ × 16½ cms.) duly stamped for ordinary or registered post.

Full particulars can be obtained on requisition from the Director, Osmania University Press, free of cost, by sending a self-addressed stamped envelope.

B. Ramchandra Reddy
REGISTRAR

It Pays
to
Advertise
in
University News

JAMIA MILLIA ISLAMIA

Jamianagar, New Delhi-110025

Advt. No. 6/79 80

Applications on the prescribed form which can be had from the Registrar's Office on any day (except Sunday and Holidays) between 10:00 a.m. to 12:00 Noon or by sending a self-addressed and duly stamped (₹ 0 paise) envelope of 10 x 23 cms., are invited along with the postal order of Rs. 3/- for the following posts so as to reach the Registrar by 1:00 p.m. on August 1, 1979.

Ability to teach in Urdu and Hindi is a desirable qualification.

D.A., C.C.A., H.R.A., P.F., Gratuity, Pension etc. and such other benefits will be given according to Jamia rules.

Relaxation in any of the qualifications may be made on the recommendation of the Selection Committee in exceptional cases.

Principal, Teachers' College (Grade: Rs. 1500-2500) likely to be converted into the post of Professor of Education, Department of Teachers' Training and Non-Formal Education.

A scholar of eminence, Independent published work of high standard, experience of teaching post-graduate classes and guiding research for a considerable period as well as experience of organising Teachers' Training and non-formal education desirable.

Two Professors (Grade: Rs. 1500-2500): one each in History (permanent) and Education (leave vacancy).

A scholar of eminence, Independent published work of high standard, experience of teaching post-graduate classes and guiding research for a considerable period desirable.

For Professorship of History specialization in Medieval Indian History desirable.

Four Readers (Grade: Rs. 1200-1900): one each in Islamic Studies, Psychology, Social Work (permanent) and one in Social Work (leave vacancy).

Good academic record with a first or high second class Master's Degree of an Indian University or an equivalent foreign qualification; a Doctorate Degree or equivalent published work in the subject concerned, and independent published work of a high standard in addition to the published work referred to above and at least 5 years' experience of teaching Hons. Post-graduate classes or 10 years' experience of teaching undergraduate classes.

For the post of Reader in Islamic Studies good knowledge of Arabic language with specialisation in Islamic Religion, Philosophy, Jurisprudence, Islamic History or World Religions would be a desirable qualification.

For the post of Reader in Psychology, specialization in Social Psychology would be a desirable qualification.

For the post of Reader in Social Work, experience in teaching training in Applied Social Sciences projects would be a desirable qualification.

Reader in Art & Craft Education (Grade: Rs. 1200-1900).

Essential

1. A first or high second class Master's Degree or National Diploma or equivalent Degree/Diploma in Art.
2. Five years experience in teaching of

University level.

3. Experience of research work or professional eminence as an artist with participation in National/International level Art Exhibitions.

Five Lecturers (Grade: 700-1600): One each in Social Work, Modern Indian History, Chemistry, English and Political Science (leave vacancies).

- (a) A Doctor's degree or research work of an equally high standard in the relevant subject; and
- (b) Consistently good academic record with 1st or high 2nd class Master's degree in the relevant subject or an equivalent degree of a foreign university.

For the post of Lecturer in Social Work experience in teaching training in Applied Social Sciences projects would be a desirable qualification.

Lecturer in Education (Commerce) Grade: Rs. 700-1600

- (a) A Doctor's degree in Education or research work of an equally high standard; and
- (b) Consistently good academic record with 1st or high 2nd class Master's degree in Commerce or an equivalent degree of a foreign university.

OR

- (a) A Doctor's degree in Commerce or research work of an equally high standard; and
- (b) Consistently good academic record with an M.Phil degree in Education or an equivalent degree of a foreign university.

Lecturer in Art Education (Sculpture; Ceramics, Pottery & Clay Modelling) Grade: Rs. 700-1600.

Essential

(1) At least high second class Higher Secondary or its equivalent. (2) At least high second class Diploma in Fine Arts of 4 or 5 years duration from a recognised Art Institution or its equivalent Diploma from a foreign university.

Desirable

(3) At least two years of teaching experience. (4) At least high second class B.Ed.(Art) or equivalent Professional training. (5) Professional standing as an artist with one-man shows and participation in National and International exhibitions.

**Zamir Hasan
OFFG. REGISTRAR**

UNIVERSITY OF JABALPUR JABALPUR ADVERTISEMENT

No. Estt. 79/1030

4th July, 1979

Applications are invited on plain paper for the following posts in the scales shown against each with benefits of dearness allowance, Contributory Provident Fund and other allowances as may be admissible under the University rules, viz:

1. Reader

One for Sanskrit (with specialization in Pali and Prakrit).

Pay Scale: Rs. 1100-50-1600.

2. Lecturers—2 posts

One for Physical Chemistry. One for Organic Chemistry.

Pay Scale: Rs. 620-40-900-50-1400.

Essential Minimum Qualifications

For Reader

- (a)(i): A doctor's degree or published work of an equivalent high

standard and;

- (b)(i): A 2nd Class Master's degree in a relevant subject with atleast 50% marks (B in the seven point scale) or an equivalent degree of a foreign University; and

N.B. While taking into account the marks/grade, the marks/grade obtained in Internal assessment, if any, shall be excluded. (ii) At least 50% marks at the Bachelor's degree examination on the basis of which division is awarded at the degree level by the University; and (iii) Atleast 60% marks at the Higher Secondary/Intermediate/Pre-University Examination, as the case may be;

and

- (c)(i) The experience of teaching post-graduate classes for atleast 5 years; and
- (ii) Atleast three years' experience of guiding research.

For Lecturers

- (a)(i): A doctor's degree or published work of an equivalent high standard; and
- (b)(i): A 2nd Class Master's degree in a relevant subject with atleast 50% marks (B in the seven point scale) or an equivalent degree of a foreign University; and

N.B. (While taking into account the marks/grade, the marks/grade obtained in internal assessment, if any, shall be excluded). (ii) Atleast 50% marks at the Bachelor's degree examination on the basis of which division is awarded at the degree level by the University, and (iii) Atleast 50% marks at the Higher Secondary/Intermediate/Pre-University Examination, as the case may be.

Having regard to the need for developing into disciplinary programmes the degree in (a)(i) and (b)(i) above may be in relevant subjects.

- N.B.:** (i) The requirement regarding minimum percentage of marks shall be relaxed upto 5% in case of scheduled castes, scheduled tribe candidates.
- (ii) The posts of lecturer in Physical Chemistry and Reader in Sanskrit are temporary for the present.

Qualifications are relaxable in cases of candidates of exceptional merit. The candidates in their applications should give details of their 'specialization'. Canvassing in any form by or on behalf of the candidate will disqualify him.

The applications showing the details of qualifications stated above along with the information regarding the proof of the date of birth and past experience accompanied with a Postal Order for Rs. 5/- in the name of the undersigned should reach here not later than 13th August, 1979. The candidates already in employment at present, should send their applications through proper channel.

**R. N. Tripathi
REGISTRAR**

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Association of Indian Universities

Rouse Avenue, New Delhi-110002